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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,363	02/28/2002	Shinichi Terashita	3693-26	9199

7590 07/30/2003

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EXAMINER	
WANG, GEORGE Y	
ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/084,363	Applicant(s) TERASHITA ET AL.	
	Examiner George Y. Wang	Art Unit 2871	

-- The MAILING DATE of this c mmunicati n appears on the c ver sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it is too long. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (U.S. Patent No. 5,579,141, from hereinafter "Suzuki") in view of Sasaki et al. (U.S. Patent No. 6,288,762, from hereinafter "Sasaki").

4. As to claims 1 and 15, Suzuki discloses a liquid crystal display (LCD) device and method having a first substrate (fig. 5, ref. 1), a second substrate (fig. 5, ref. 11), a vertical alignment type liquid crystal layer (fig. 1a, ref. 4) provided between the first and second substrates, a voltage application means (col. 13, lines 1-30) for applying voltage across the liquid crystal layer, a plurality of picture elements (fig. 5) each including the liquid crystal layer whose orientation changes according to the voltage applied by the voltage application means, where the liquid crystal layer in each of the plurality of picture elements includes a 4-divided domain (fig. 5, ref. a, b, c, d).

Although the reference discloses various substrate regions, the reference fails to specifically disclose the first substrate having two first regions having an orientation-regulating force in a first direction and a second region between the two first regions with a direction opposite the first, while the second substrate has a third region that cross the first direction and a fourth region that has a direction opposite that of the third. Furthermore, the reference fails to specifically teach the first sub-domain formed between the two first regions and the third region, the second sub-domain between the second and third regions, the third sub-domain between the second and the fourth

regions, and the fourth sub-domain between the other one of the two first regions and the fourth region.

Sasaki discloses an LCD (abstract) in a vertically aligned mode having the first substrate having two first regions (fig. 9a, ref. $13a_1$, $13a_3$) having an orientation-regulating force in a first direction and a second region (fig. 9a, ref. $13a_2$) between the two first regions with a direction opposite the first, while the second substrate has a third region (fig. 9a, ref. $13b_2$) that cross the first direction and a fourth region (fig. 9a, ref. $13b_3$) that has a direction opposite that of the third. Sasaki also teach the first sub-domain formed between the two first regions and the third region, the second sub-domain between the second and third regions, the third sub-domain between the second and the fourth regions, and the fourth sub-domain between the other one of the two first regions and the fourth region (fig. 9-10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the first substrate with two first regions having an orientation-regulating force in a first direction and a second region between the two first regions with a direction opposite the first, while the second substrate has a third region that cross the first direction and a fourth region that has a direction opposite that of the third, and the first sub-domain formed between the two first regions and the third region, the second sub-domain between the second and third regions, the third sub-domain between the second and the fourth regions, and the fourth sub-domain between the other one of the two first regions and the fourth region since one would be motivated to provide a vertically aligned mode LCD device having a divided alignment domain

structure realized stably in a liquid crystal layer (col. 3, lines 19-22). This not only eliminates problems associated with stability (col. 3, lines 12-15), it also provides a VA-mode LCD device having an improved view angle characteristics (col. 3, lines 16-18).

5. As per claim 2, Suzuki discloses an LCD device as recited above having a first direction that is perpendicular to the third direction (col. 8, line 61 – col. 9, line 2).

6. Regarding claims 3-6, Suzuki discloses an LCD device as recited above where the picture element (fig. 5) includes the presence of applied voltage (col. 13, lines 1-30) and a 4-divided domain (fig. 5, ref. a, b, c, d). Furthermore, the reference teaches that the total area of the sub-domains are equal to one another (col. 6, lines 44-51).

However, the reference fails to specifically disclose an additional first sub-domain that is adjacent to the fourth sub-domain.

Sasaki discloses an LCD device with an additional first sub-domain that is adjacent to the fourth sub-domain (fig. 9a, ref. $13a_3$).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have an additional first sub-domain that is adjacent to the fourth sub-domain since one would be motivated to provide a vertically aligned mode LCD device having a divided alignment domain structure realized stably in a liquid crystal layer (col. 3, lines 19-22). This not only eliminates problems associated with stability (col. 3, lines 12-15), it also provides a VA-mode LCD device having an improved view angle characteristics (col. 3, lines 16-18).

7. Regarding claims 7-12, Suzuki discloses an LCD device as recited above where the length of the second sub-domain is directly related to the length of each of the second region and fourth region and where the plurality of picture elements is arranged in a matrix of rows and columns such that the regions are formed in parallel to the rows in a stripe pattern (fig. 14-17).

8. As to claims 13-14, Suzuki discloses an LCD device as recited above, however, the reference fails to specifically disclose a display produced normally in black mode and further having a pair of opposing polarizers.

Sasaki discloses an LCD device with a display produced normally in black mode (col. 1, lines 45-63) and further having a pair of opposing polarizers (col. 1, lines 34-41).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a black mode display and a pair of polarizers since one would be motivated to provide precise vertical alignment of the liquid crystal molecules (col. 1, lines 45-63), thereby improving contrast ratio and viewing angle (col. 3, lines 12-22).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 703-305-7242. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

gw
July 18, 2003